

Date: Monday, 7/9/2007 11:46:49 AM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : RING
 Job Number : 33351
 Estimate Number : 10608
 P.O. Number :
 This Issue : 7/9/2007 S.O. No. :
 Prsht Rev. : NC Part Number : D2655
 First Issue : 1/1 Type : PURCHASED PARTS Drawing Number : D2655 REV B
 Previous Run : 32988 Drawing Revision : B
 Material :
 Due Date : 7/20/2007 Qty: 20 Um: Each
 Written By :
 Checked & Approved By :
 Comment : Est. D 00.06.22 Removed P/O for powder coat EC
 Est Rev:E Now on Waterjet 06-10-04 JLM

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 M1018B400X250 Inventory



Comment: Qty.: 0.2835 f(s)/Unit Total : 5.6700 f(s)

1018 ASTM A36 .250" thk bar x 4.0"

Batch: M104640

IB 07-08-24
 IB 07-07-27

2.0 WATER JET FLOW WATER JET



Comment: FLOW WATER JET

1-Cut as per Dwg D2655

Dwg Rev: B

Prog Rev: B

IB 07-08-24
 IB 07-07-27

2-Deburr if necessary

3.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE



IB 07-08-24
 IB 07-07-27



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

4.0 QC8 SECOND CHECK



Comment: SECOND CHECK

IB 07-08-27



counter

5.0 SMALL FAB 1 SMALL & MEDIUM FAB RESOURCE 1



Comment: SMALL & MEDIUM FAB RESOURCE 1





1-Tumble - .030 Radius

2-Deburr any rough edges after tumbling

open 1.25" hole to blank size SAD 07/09/15 2B

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ~~D 3413~~ 2655 PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: 12 Date: 07/10/07
 QA: N/C Closed: _____ Date: _____

NCR: 33351		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07/06/07	20	one part has the $\phi 2.00$ " dia. hole cut 1.965" and with a small h.p. inside the $\phi 2.00$ " dia		BUFF TO SIZE	SAN 07/09/15	 07/01/17	 07.08.27	 07/08/07

NOTE: Date & initial all entries

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: RING

Job Number: 33351

Part Number: D2655

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Er 07/09/17 (26) counter

7.0

POWDER COATING

POWDER COATING



M105068



(26X)

Comment: POWDER COATING

Powder Coat per QSI 005 4.3.5.1

m-h

07/09/18

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

07/09/18 (26)

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

07/09/19 (26)

(P10)

10.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

07.10.02

Job Completion




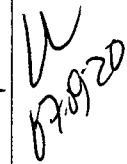
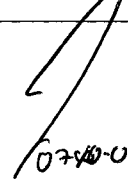
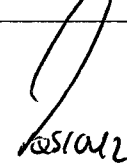
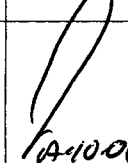
U 51002

made of 304 SS - not acceptable
see w/o 34753 for D3413-1 rework

U
07-09-20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ~~D3413~~ 2655 PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

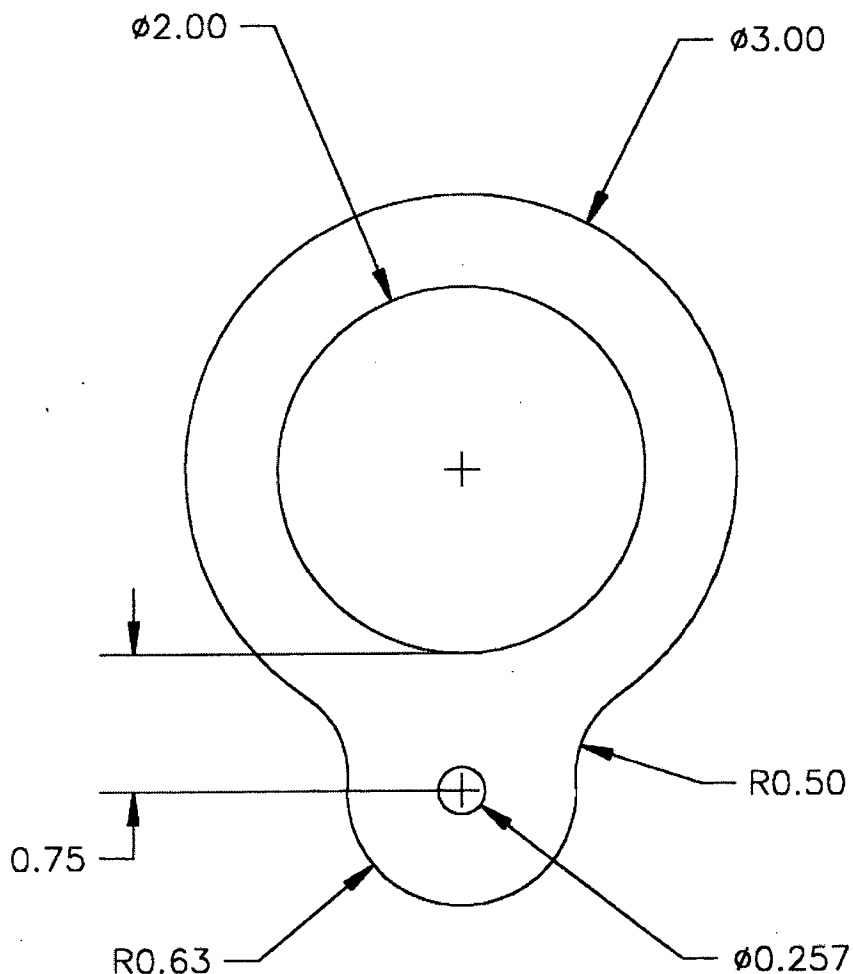
NCR: 33351		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07/10/01	9.0 1.0	upon closing the W/O, it was noticed that the incorrect material was pulled and used. This material was unacceptable for these parts. R.C. Human error.	 05/10/02	See attached e-mail. create custom W/O to open hole, and make the parts D3413-1 rings see W/O 34753.	 07/09/02	 07/10/01	 05/10/02	 07/10/01

NOTE: Date & initial all entries



DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE USA, INC. FAIRCHILD INTERNATIONAL AIRPORT, WA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2655	REV. B SHEET 1 OF 1
DATE 97:07:07		TITLE RING	SCALE 1:1
A	97:03:25	NEW ISSUE	
B	97:07:07	ADD ASTM A36 TO MAT. SPEC.	

RELEASED
47/07/11 DS



NOTE: DEBURR ALL SHARP EDGES

MATERIAL: AISI 1018/1020/1025 OR ASTM A36 0.250 THICK

FINISH: POWDER COAT PER DART QSI 005 4.3

TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 33351

L Lacelle

From: Marc Bellavance [mbellavance@dartaero.com]
Sent: September 19, 2007 9:51 AM
To: 'L Lacelle'
Cc: 'Jason Murdoch'
Subject: RE: D2655

It is unacceptable to me based on the fact that the AISI 304 Stainless Steel Mechanical Properties are not nearly as good as the AISI 1018's:

AISI 304 Stainless Steel Mechanical Properties:

Properties		Conditions	
		T (°C)	Treatment
Density ($\times 1000 \text{ kg/m}^3$)	8	25	
Poisson's Ratio	0.27-0.30	25	
Elastic Modulus (GPa)	193	25	
Tensile Strength (Mpa)	515		
Yield Strength (Mpa)	205	25	hot finished and annealed
Elongation (%)	40		(plate, sheet, strip)
Reduction in Area (%)	50		
Hardness (HRB)	88	25	annealed (plate, sheet, strip)

AISI 1018 Carbon Steel Mechanical Properties:

Properties		Conditions	
		T (°C)	Treatment
Density ($\times 1000 \text{ kg/m}^3$)	7.7-8.03	25	
Poisson's Ratio	0.27-0.30	25	
Elastic Modulus (GPa)	190-210	25	
Tensile Strength (Mpa)	634		
Yield Strength (Mpa)	386	25	carburized at 925°C, cooled, reheated to 775°C, water quenched, tempered at 175°C, core properties (round bar (19-32 mm)) more
Elongation (%)	27		
Reduction in Area (%)	48		
Hardness (HB)	197	25	carburized at 925°C, cooled, reheated to 775°C, water quenched, tempered at 175°C, core properties (round bar (19-32 mm))

19/09/2007

Marc Bellavance
Internal Support/Product Improvement

DART aerospace Ltd.

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Web: www.dartaero.com

From: L Lacelle [<mailto:llacelle@dartaero.com>]

Sent: September 19, 2007 8:52 AM

To: Marc Bellavance (Marc Bellavance)

Cc: Jason Murdoch

Subject: D2655

26 rings , D2655 were made of 304 SS instead of 1018 mild steel...are these acceptable?

LL

19/09/2007